

Title: VEHICLE CHARGING AND POTENTIAL (VCAP)

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Short Description: The instrumentation of the VCAP includes a small electron accelerator capable of operating in a pulsed mode with firing pulses ranging from 600 nanoseconds to 107 seconds (100 milliamps at 1000 volts), a spherical retarding potential analyzer-Langmuir probe, and charge current probes. This instrumentation will support studies of beam plasma interactions and the electrical charging of the spacecraft. Active experiments may also be performed to investigate the fundamental processes of artificial aurora and ionospheric perturbations. In addition, by firing the beam up the geomagnetic field lines of force (away from the Earth) investigations of parallel electrical fields may be performed.

Instrument Characteristics:

Mass:	100 kilograms
Volume:	0.3 cubic meters
Power:	0.3 kilowatts
Data rate:	100 Kbps

General Comments:

Instrumentation originally flown on OSS-1 and Spacelab II missions.

The VCAP will be operated during STO campaign modes to support magnetosphere/ionosphere investigations.

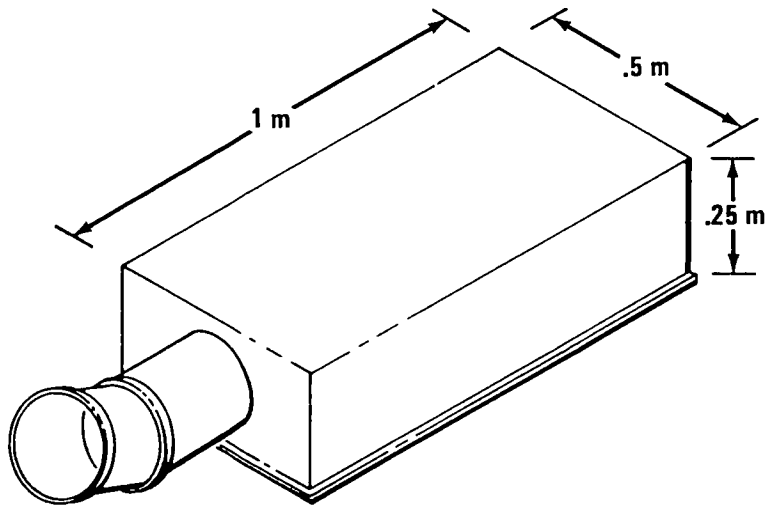
Coordinated experiments between the polar platform and the manned Space Station will occasionally be performed.

Coordinated investigations with other polar platform instruments will be performed.

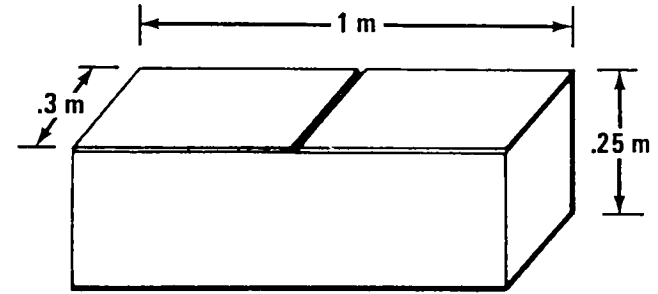
Source of Information: VCAP Information Sheets

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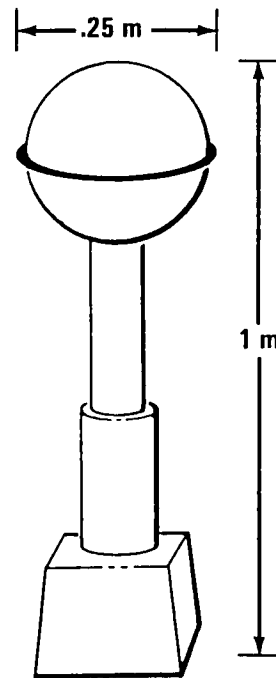
VEHICLE CHARGING AND POTENTIAL EXPERIMENT PACKAGES



FAST PULSE ELECTRON GUN



CHARGE CURRENT PROBE



SPHERICAL PROBE